

REMARKS

Claims 1-18 are pending in the application. Claims 6, 12, 13, and 18 have been amended.

The abstract and claim 14 were objected to. Claims 6 and 12-18 are rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 1-5, 7-11, and 13-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Albrecht et al., U.S. 5,821,494 (Albrecht). Claims 1-5, 7-11, and 13-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Ainslie et al., U.S. 4,761,699 (Ainslie). Claims 6, 12, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Albrecht or Ainslie.

Information Disclosure Statement

The Examiner's objection to the listing of references in the specification at page 1 has been noted. A proper information disclosure statement will be forth coming.

Objections to the Specification

The Examiner's objection to the wording of the abstract has been noted. The abstract has been corrected.

Claim Objections and Rejections under 35 U.S.C. §112

Claim 14 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claims 6 and 12-18 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 6, 12, 13, and

18 were amended to correct typos that were causing this discrepancy.

Rejections under 35 U.S.C. §102

Claims 1-5, 7-11, and 13-17 were rejected under 35 U.S.C. §102(b) as being anticipated by Albrecht. Albrecht discloses making a solder connection between a slider pad and a suspension pad is provided by forming a solder bump on the solder pad at the slider level to affix the slider to the suspension (See Abstract).

The Applicants respectfully traverse these rejections, in part, because Albrecht fails to teach or suggest a metal pad having a bonding substance as a surface finishing material, as called for in claims 1 and 7. The Examiner states, in regards to claims 1 and 7, that Albrecht discloses the invention as claimed. Albrecht states:

In FIG. 12A the slider 42 is affixed to the suspension 44 so that the slider pad 62 and the suspension pad 64 are adjacent one another for reflow of solder. A solder ball, produced at the end of the capillary from solder wire, is bumped against each of the slider pad 62 and the suspension pad 64 simultaneously to produce solder bump 122, as shown in FIG. 12B.

(See Albrecht, col. 10, lines 36-42).

In other words, a solder ball is placed between the slider pad and the suspension pad. The solder is not a surface finishing material. In claim 1, a bonding pad for electrically bonding a magnetic head terminal is recited. Such a bonding pad includes a metal pad and a bonding substance (e.g. solder) as a finishing material. As described above, Albrecht does not show or suggest that a bonding pad with these two components be created. Instead, Albrecht describes a metal pad 64 and nothing further for the bonding pad. Therefore, Albrecht does not disclose a metal pad having a bonding substance as a surface finishing material) as set forth in claims 1 and 7. Since at least this feature of claims 1 and 7 is missing

from Albrecht, the Albrecht reference fails to anticipate claims 1 and 7 under 35 U.S.C.

§102(b). Applicant further respectfully submits that claims 2-5 and 8-11 are allowable as depending from the allowable base claims 1 and 7.

Albrecht fails to teach or suggest planting a bonding substance onto said first metal pad of said suspension, then potting a slider on said suspension, as called for in claim 13. The Examiner states, in regards to claim 13, that Albrecht discloses the invention as claimed. As shown above, Albrecht discloses simultaneously placing a solder ball between the slider pad and the suspension pad. Therefore, Albrecht does not disclose planting a bonding substance onto said first metal pad of said suspension, then potting a slider on said suspension, as set forth in claim 13. Since at least this feature of claim 13 is missing from Albrecht, the Albrecht reference fails to anticipate claim 13 under 35 U.S.C. §102(b). Applicant further respectfully submits that claims 14-17 are allowable as depending from the allowable base claim 13.

Claims 1-5, 7-11, and 13-17 were further rejected under 35 U.S.C. §102(b) as being anticipated by Ainslie. Ainslie discloses mechanically attaching a slider to the suspension by means of reflowed solder balls. A pattern of solder contact pads is formed on the back side of the slider and a similar pattern of solder-wettable regions is formed on the suspension (See Abstract).

The Applicants respectfully traverse these rejections, in part, because Ainslie fails to teach or suggest a metal pad having a bonding substance as a surface finishing material, as called for in claims 1 and 7. The Examiner states, in regards to claims 1 and 7, that Ainslie discloses the invention as claimed. Ainslie states:

As shown in FIG. 4, each of the contact pads 70 comprises an adhesion film 74

formed directly on the slider back side 24 and a solder-wettable film 76 formed on the adhesion film 74. The solder contact pads are formed on the slider back side by a suitable mask having openings which is placed over back side 24.

(See Ainslie, col. 4, lines 18-23).

If the solder balls are not to be formed for some time, then a corrosion-resistant film 78 of, for example, gold is formed over the nickel film.

(See Ainslie, col. 4, lines 18-23).

In other words, a solder wettable film or corrosion resistant film acts as the surface finishing material for the slider pad, and not a bonding substance. Further, Ainslie states:

Referring again to FIG. 3, the solder-wettable regions on suspension 40 are formed by removing selected portions of the polyimide insulating layer 48, which thereby exposes the circular openings 60, 61 on large area portions 52, 54 and the circular openings 63 on lead terminations 47.

(See Ainslie, col. 4, lines 18-23).

In other words, the suspension does not even have pads. (Therefore, Ainslie does not disclose a metal pad having a bonding substance as a surface finishing material) as set forth in claims 1 and 7. Since at least this feature of claims 1 and 7 is missing from Ainslie, the Ainslie reference fails to anticipate claims 1 and 7 under 35 U.S.C. §102(b). Applicant further respectfully submits that claims 2-5 and 8-11 are allowable as depending from the allowable base claims 1 and 7.

Ainslie fails to teach or suggest planting a bonding substance onto said first metal pad of said suspension, then potting a slider on said suspension, as called for in claim 13. The Examiner states, in regards to claim 13, that Ainslie discloses the invention as claimed. As shown above, Ainslie discloses a suspension lacking pads. Therefore, Ainslie does not disclose planting a bonding substance onto said first metal pad of said suspension, as set forth in claim 13. Since at least this feature of claim 13 is missing from Ainslie, the Ainslie

reference fails to anticipate claim 13 under 35 U.S.C. §102(b). Applicant further respectfully submits that claims 14-17 are allowable as depending from the allowable base claim 13.

Based on the arguments above, reconsideration and withdrawal of the rejection of claims 1-5, 7-11, and 13-17 under 35 U.S.C. §102(b) is respectfully requested.

Rejections under 35 U.S.C. §103

Claims 6, 12, and 18 were rejected under 35 U.S.C. §103(a) as being unpatentable over Albrecht or Ainslie. Claims 6 and 12 include a metal pad having a bonding substance as a surface finishing material, through dependency on claims 1 and 7, respectively. As stated above, Albrecht and Ainslie both fail to disclose, teach, or suggest this limitation. Further, claim 18 includes planting a bonding substance onto said first metal pad of said suspension, then potting a slider on said suspension, through dependency on claim 13. As stated above, Albrecht and Ainslie both fail to disclose, teach, or suggest this limitation. Therefore, claims 6, 12, and 18 are not obvious in view of either Albrecht or Ainslie.

Based on the arguments above, reconsideration and withdrawal of the rejection of claims 6, 12, and 18 under 35 U.S.C. §103(a) is respectfully requested.

CONCLUSION

For all the above reasons, the Applicant respectfully submits that this application is in condition for allowance. A Notice of Allowance is earnestly solicited.

The Examiner is invited to contact the undersigned at (408) 975-7500 to discuss any matter concerning this application. The Office is hereby authorized to charge any additional fees or credit any overpayments under 37 C.F.R. §1.16 or §1.17 to Deposit Account No. 11-0600.

Respectfully submitted,

KENYON & KENYON

Dated: April 22, 2002

By: Stephen T. Neal
Stephen T. Neal
(Reg. No. 47,815)

For: Shawn W. O'Dowd
(Reg. No. 34,687)

KENYON & KENYON
333 West San Carlos St., Suite 600
San Jose, CA 95110

Telephone: (408) 975-7500
Facsimile: (408) 975-7501

Amended Abstract – Version With Markings to Show Changes Made

A new type of suspension circuit electrical bonding pad [is described] for electrically and mechanically connecting [process for] the magnetic recording head is described. The new type of bonding pad will serve as the joint material as well as the joint interface. Thus, there is no need to apply the conductive material in between the bonding pads and the magnetic recording head terminals, consequently reducing the process leading time and simplifying the magnetic recording head assembly [assemble] process.

Amended Claims – Version With Markings to Show Changes Made

6. (Amended) A bonding pad for electrically bonding a magnetic head terminal as set forth in claim [1] 2, wherein [the solder] a bump height for the solder is approximately 50-300 μm , and [the solder] a bump diameter for the solder is less than 180 μm .

12. (Amended) The disk drive as claim in claim [7] 8, wherein [the solder] a bump height for the solder is approximately 50-300 μm , and [the solder] a bump diameter for the solder is less than 180 μm .

13. (Amended) An assemble method for a bonding pad for electrically bonding a magnetic head terminal comprising:

providing a first metal pad on an incoming suspension;

planting [solder] a bonding substance onto said first metal pad of said suspension;

subsequently potting a slider on said suspension; and

making a heat treatment for said suspension so that said [solder] bonding substance on said first metal pad adheres to a second metal pad of said slider, [and becomes] the bonding substance becoming a solid state.

18. (Amended) The method as claimed in claim [13] 14, wherein [the solder] a bump height for the solder is approximately 50-300 μm , and [the solder] a bump diameter for the solder is less than 180 μm .